SECTION 08 71 00
DOOR HARDWARE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Door hardware and related items necessary for complete installation and operation of doors.

1.2 RELATED WORK

A. Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS for additional LEED requirements.

B. Section 01 81 19, INDOOR AIR QUALITY REQUIREMENTS for VOC limit.

C. Caulking: Section 07 92 00 JOINT SEALANTS.

D. Application of Hardware: Section 08 14 00, WOOD DOORS; Section 08 11 13, HOLLOW METAL DOORS AND FRAMES; Section 08 41 13, ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS; Section 08 33 00, COILING DOORS; Section 08 71 13, AUTOMATIC DOOR OPERATORS.

E. Finishes: Section 09 06 00, SCHEDULE FOR FINISHES.

F. Painting: Section 09 91 00, PAINTING.

G. Card Readers: Section 28 05 33, WIRING FOR CARD READERS AND ELECTRONIC DEVICES.

1. Provided by Government under a separate contract.

1.3 GENERAL

A. All hardware shall comply with UFAS, (Uniform Federal Accessible Standards) unless specified otherwise.

B. Hardware for Labeled Fire Doors and Exit Doors: Conform to requirements of NFPA 80 for labeled fire doors and to NFPA 101 for exit doors, as well as to other requirements specified. Provide hardware listed by UL, except where heavier materials, large size, or better grades are specified herein under paragraph HARDWARE SETS. In lieu of UL labeling and listing, test reports from a nationally recognized testing agency may be submitted showing that hardware has been tested in accordance with UL test methods and that it conforms to NFPA requirements.

C. Hardware for application on metal and wood doors and frames shall be made to standard templates. Furnish templates to the fabricator of these items in sufficient time so as not to delay the construction.

D. The following items shall be of the same manufacturer, if possible, except as otherwise specified:

1. Mortise locksets.

2. Hinges for hollow metal and wood doors.

3. Surface applied overhead door closers.
4. Exit devices.
5. Floor closers.

1.4 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

B. Hardware Schedule: Prepare and submit hardware schedule in the following form:

Hardware Item	Quantity	Size	Reference Publication Type No.	Finish	Mfr. Name and Catalog No.	Key Control Symbols	UL Mark (if fire rated and listed)	ANSI/BHMA Finish Designation

C. Samples and Manufacturers' Literature:
1. Samples: All hardware items (proposed for the project) that have not been previously approved by Builders Hardware Manufacturers Association shall be submitted for approval. Tag and mark all items with manufacturer's name, catalog number and project number.
2. Samples are not required for hardware listed in the specifications by manufacturer's catalog number if the contractor proposes to use the manufacturer's product specified.

D. Certificate of Compliance and Test Reports: Submit certificates that hardware conforms to the requirements specified herein. Certificates shall be accompanied by copies of reports as referenced. The testing shall have been conducted either in the manufacturer's plant and certified by an independent testing laboratory or conducted in an independent laboratory, within four years of submittal of reports for approval.

E. LEED Information:
1. Credits MR 4.1 & 4.2: For products having recycled content, documentation indicating percentages by weight of post-consumer and pre-consumer recycled content.
   a. Include statement indicating costs for each product containing recycled content.

2. Credits MR 5.1 & 5.2: For products manufactured within 500 miles of project site *and* whose raw materials are extracted, harvested or recovered, within 500 miles of the project site, documentation indicating the location and distance of material manufacturer and point of extraction, harvest, or recovery for each raw material from the Project site.
   a. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

1.5 DELIVERY AND MARKING

A. Deliver items of hardware to job site in their original containers, complete with necessary appurtenances including screws, keys, and instructions. Tag one of each different item of hardware and deliver to Resident Engineer for reference purposes. Tag shall identify items by Project Specification number and manufacturer's catalog number. These items shall remain on file in Resident Engineer's office until all other similar items have been installed in project, at which time the Resident Engineer will deliver items on file to Contractor for installation in predetermined locations on the project.

1.6 INSTRUCTIONS

A. Hardware Set Symbols on Drawings: Except for protective plates, door stops, mutes, thresholds and the like specified herein, hardware requirements for each door are indicated on drawings by symbols. Symbols for hardware sets consist of letters "HW" followed by a number. Each number designates a set of hardware items applicable to a door type.

B. Manufacturers' Catalog Number References: Where manufacturers' products are specified herein, products of other manufacturers which are considered equivalent to those specified may be used. Manufacturers whose products are specified are identified by abbreviations as follows:

Adams-Rite	Adams Rite Mfg. Co.	Glendale, CA
Glynn Johnson	Glynn Johnson Co.	Chicago, IL
LCN	LCN Closers	Princeton, IL
Firemark	Rixon-Firemark Co.	Chicago, IL
Hager	Hager Hinge Company	Saint Louis, MO
Stanley	The Stanley Works	New Britain, CT
Trimco	Triangle Brass Mfg. Co.	Los Angeles, CA

Unican	Simplex Security Systems	Collinsville, CT
Von Duprin	Von Duprin Hardware Co.	Indianapolis, IN
Zero	Zero Weather Stripping Co.	New York, NY

C. Keying: All cylinders shall be keyed into existing Grand Master Key System. Provide removable core cylinders that are removable only with a special key or tool without disassembly of knob or lockset. Cylinders shall be 7 pin type. Keying information shall be furnished at a later date by the Resident Engineer.

D. Interchangeable Core and Key Part Numbers are: KABA-ILCO/Peaks.
   1. 3850-25-1007 P3 50%
   2. 3850-25-1007 P4 50%.
   3. Elevator key switch – 7 pin SFIC
   4. Electric panel covers – 7 pin SFIC.
   5. Dealer code: A02 N01.
   6. Key part number: 3850-00-0003.

E. Provide spare cores as follows:
   P1 Keyway: 50%.
   P2 Keyway: 40%.
   P3 Keyway: 50%.
   P4 Keyway: 50%.

PART 2 – PRODUCTS

2.1 MATERIALS

A. LEED Requirements:
   1. Recycled Content of Steel Products: Provide steel products with minimum 25% post-consumer recycled content.

2.2 BUTT HINGES

A. ANSI A156.1. The following types of butt hinges shall be used for the types of doors listed, except where otherwise specified:
   1. Exterior Doors: Type A2112 for doors 900 mm (3 feet) wide or less and Type A2111 for doors over 900 mm (3 feet) wide. Hinges for exterior doors shall have non-removable pins.
   2. Interior Doors: Type 8112 for doors 900 mm (3 feet) wide or less and Type A8111 for doors over 900 mm (3 feet) wide.
   3. Automatic doors hung on butts, provide Type A2111 for exterior doors and aluminum doors, and Type A8111 for other doors.
   4. Labeled Wood Fire Doors: Type 8411 or Type 8412; these hinges shall be thru bolted to door with hex nuts and bolts.

B. See Articles "MISCELLANEOUS HARDWARE" and "HARDWARE SETS" for pivots and hinges other than butts specified above and continuous hinges specified below.

2.3 CONTINUOUS HINGES

A. ANSI/BHMA A156.26, Grade 1-150.
   1. Listed under Category N in BHMA's "Certified Product Directory."

B. General: Minimum 0.120-inch- (3.0-mm-) thick, hinge leaves with minimum overall width of 4 inches (102 mm); fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete:
   1. Fire Pins: Steel pins to hold labeled fire doors in place if required by tested listing.

C. Continuous, Gear-Type Hinges: Extruded-aluminum, pinless, geared hinge leaves; joined by a continuous extruded-aluminum channel cap; with concealed, self-lubricating thrust bearings.
   1. Manufacturers:
      a. Bommer Industries, Inc.
      b. Hager Companies.
      c. McKinney Products Company; an ASSA ABLOY Group company.
      d. Pemko Manufacturing Co.
      e. Select Products Limited.
      f. Zero International.

2.4 DOOR CLOSING DEVICES

A. Closing devices shall be products of one manufacturer.

2.5 OVERHEAD CLOSERS

A. Conform to ANSI A156.4, Grade 1.

B. Closers shall conform to the following:
   1. The closer shall have 50 percent adjustable closing force over minimum value for that closer and have adjustable hydraulic back check effective between 60 degrees and 85 degrees of door opening.
   2. Where specified, closer shall have hold-open feature.
   3. Size Requirements: Size closers in accordance with manufacturer’s recommendations or provide multi-size closers, sizes 1 through 6.
   4. Material of closer shall be forged or cast iron or cast aluminum.
   5. Arm and brackets for closers shall be steel, malleable iron or high strength ductile cast iron.
   6. Closers shall have full size cover.

7. Closers shall have adjustable hydraulic back-check and separate valves for closing and latching speed.

2.6 COMBINATION CLOSER – HOLDER

A. Conform to ANSI A156.15; combination closer-holder with built-in electronic release.

B. Combination closer-holder shall have the following features:

1. Control door closing and latching sequence by hydraulic action.
2. Wiring for 24V DC current. Current draw shall not exceed 0.16 amperes.
3. Double level arm closing action, and adjustable hydraulic back-check.
4. Spring power for closing force shall conform to ANSI A156.4 and have 50% spring power adjustment.
5. Closer Size Requirements:
   a. Doors, 900 mm (3 feet) and less in width: Size III closer.
   b. Doors over 900 mm (3 feet) and less than 1050 mm (3 feet 6 inches) in width: Size IV closer.
   c. Doors 1050 mm (3 feet 6 inches) and over in width: Size V closer.
6. Hold open mechanism shall hold door open between 85 degrees and 180 degrees depending on wall and frame conditions. Mount device to provide maximum door opening permitted by building construction or equipment.
7. Electronic release shall release door when signaled by smoke detector. Smoke detectors shall not be incorporated as an integral part of door holders. Smoke detectors are specified in the ELECTRICAL Section.
8. All closers to have full covers.
9. All closers shall have a 1 1/2” piston and an adjustable back check position valve.

2.7 DOOR STOPS

A. Conform to ANSI A156.16.

B. Provide door stops wherever an opened door or any item of hardware thereon would strike a wall, column, equipment or other parts of building construction. For concrete, masonry or quarry tile construction, use lead expansion shields for mounting door stops.

C. Where cylindrical locks with turn pieces or pushbuttons occur, equip wall bumpers Type L02251 (rubber pads having concave face) to receive turn piece or button.

D. Substitute floor stops Type L02141 or L02161 as appropriate, when wall bumpers would not provide an effective door stop.

E. Where drywall partitions occur, use floor stops, Type L02141 or L02161.

F. Provide stop Type L02011 or L02181, as applicable for exterior doors.

G. Omit stops where floor mounted door holders are required and where automatic operated doors occur.

H. Provide appropriate roller bumper for each set of doors (except where closet doors occur) where two doors would interfere with each other in swinging.

I. Provide appropriate door mounted stop on doors in individual toilets where floor or wall mounted stops cannot be used.

J. Provide overhead surface applied stop Type C02541, ANSI A156.8 on patient toilet doors in bedrooms where toilet door could come in contact with the bedroom door.

K. Provide door stops on doors where combination closer magnetic holders are specified.

2.8 OVERHEAD DOOR HOLDERS

A. Conform to ANSI Standard A156.8. Overhead holders shall be of sizes recommended by holder manufacturer for each width of door. Set overhead holders for 110 degree opening, unless limited by building construction or equipment.

2.9 FLOOR DOOR HOLDERS

A. Conform to ANSI Standard A156.16. Provide extension strikes for Types L01301 and L01311 holders where necessary.

2.10 LOCKS AND LATCHES

A. Conform to ANSI A156.2. Locks and latches for doors 45 mm (1-3/4 inch) thick or over shall have beveled fronts. Lock cylinders shall have not less than seven pins. Cylinders for all locksets shall be removable core type. Cylinders shall be furnished with construction removable cores and construction master keys. Cylinder shall be removable by special key or tool. Construct all cores so that they will be interchangeable into the core housings of all mortise locks, rim locks, cylindrical locks, and any other type lock included in the Great Grand Master Key System. Disassembly of lever or lockset shall not be required to remove core from lockset. All locksets or latches on double doors with fire label shall have latch bolt with 19 mm (3/4 inch) throw. Provide temporary keying device or construction core of allow

opening and closing during construction and prior to the installation of final cores.

B. SFIC: Small format interchangeable core 7 pin.

C. In addition to above requirements, locks and latches shall comply with following requirements:

1. Mortise Lock and Latch Sets: Conform to ANSI/BHMA A156.13. Mortise locksets shall be series 1000, minimum Grade 1. All locksets and latchsets shall have lever handles similar to Best 45H or Schlage 9800. Lever handle shall be fabricated from wrought stainless steel. No substitute lever design or material shall be accepted. All locks and latchsets shall be furnished with curved lip strike and wrought box. Lock function F02 shall be furnished with key plates similar to Russwin's No. A70. Furnish armored fronts for all mortise locks.
2. Auxiliary locks shall be as specified under hardware sets and conform to ANSI A156.5.
3. Private office doors shall have cylinder locksets where indicated in hardware sets.

2.11 ELECTROMAGNETIC LOCKS

A. ANSI/BHMA A156.23; electrically powered, of strength and configuration indicated; with electromagnet attached to frame and armature plate attached to door. Listed under Category E in BHMA's "Certified Product Directory."

1. Type: Full exterior or full interior, as required by application indicated.
2. Strength Ranking: 1500 lbf (6672 N).
3. Inductive Kickback Peak Voltage: Not more than 53V.
4. Residual Magnetism: Not more than 4 lbf (18 N) to separate door from magnet.

B. Delayed-Egress Locks: BHMA A156.24. Listed under Category G in BHMA's "Certified Product Directory".

1. Means of Egress Doors: Lock releases within 15 seconds after applying a force not more than 15 lbf (67 N) for not more than 3 seconds, as required by NFPA 101.
2. Security Grade: Activated from secure side of door by initiating device.
3. Movement Grade: Activated by door movement as initiating device.

C. Manufacturers:

1. Door Controls International.

2. Doorguard Systems, Inc.
3. Dortronics Systems, Inc.
4. DynaLock Corp.
5. Locknetics; an Ingersoll-Rand Company.
6. Rutherford Controls Int'l. Corp.
7. SARGENT Manufacturing Company; an ASSA ABLOY Group company.
8. Securitron Magnalock Corporation; an ASSA ABLOY Group company.
9. Security Door Controls.

2.12 CARD READERS AND REQUEST TO EXIT DEVICES

A. Card readers and overhead request to exit devices are provided and installed under a separate contract. Locations are indicated on Architectural drawings. These locations are inclusive of conduit for electric strikes and power for magnetic locks as required. Coordinate with electrical Drawings. Refer to Section 28 05 33 RACEWAY AND BOXES FOR ELECTRONIC SAFETY AND SECURITY for card reader installation requirements and coordination.

2.13 ELECTRIC STRIKES

A. ANSI/ BHMA A156.31 Grade 1.

B. General: Use fail-safe electric strikes with fire-rated devices.

C. Manufacturers:

1. Adams Rite Manufacturing Co.
2. Folger Adam Security Inc.; an ASSA ABLOY Group company.
3. HES, Inc.; an ASSA ABLOY Group company.
4. Locknetics; an Ingersoll-Rand Company.
5. Precision Hardware, Inc.
6. Von Duprin; an Ingersoll-Rand Company.

2.14 KEYS

A. Keying by VA locksmith.

B. Number of keys to match number of doors (x=50ΔP3, 50ΔP4).

C. Uncombinated number of cores = number of doors (x = 50ΔP3, 50ΔP4).

2.15 ARMOR PLATES, COMBINATION KICK-MOP PLATES AND DOOR EDGING

A. Conform to ANSI Standard A156.6.

B. Provide protective plates and door edging as specified below:

1. Kick-mop plates and armor plates plastic or metal, Type J100 series, color as required. When wood grain plastic plates are specified in Section 09 06 00, SCHEDULE FOR FINISHES, grain plates shall run in same direction as grain of face veneer of wood doors.

2. Provide kick-mop plates for both sides of each door, except where noted as not required. Kick-mop plates shall be 200 mm (8 inches) high. On push side of doors where jamb stop extends to floor, make combination kick-mop plates 38 mm (1-1/2 inches) less than width of door, except pairs of metal doors which shall have plates 25 mm (1 inch) less than width of each door. Extend all other combination kick-mop plates to within 6 mm (1/4 inch) of each edge of doors. Kick mop plates shall butt astragals. For jamb stop requirements, see specification sections pertaining to door frames.
3. Kick-mop plates are not required on following door sides:
   a) Armor plate side of doors;
   b) Exterior side of exterior doors;
   c) Closet side of closet doors;
   d) Storage side of doors to or from storage spaces; and
   e) Both sides of aluminum entrance doors.
4. Armor plates for doors are listed under Article "Hardware Sets". Armor plates shall be 875 mm (35 inches) high and 38 mm (1-1/2 inches) less than width of doors, except on pairs of metal doors. Plates on pairs of metal doors shall be 25 mm (1 inch) less than width of each door. Where top of intermediate rail of door is less than 875 mm (35 inches) from door bottom, extend armor plates to within 13 mm (1/2 inch) of top rail. On doors equipped with panic devices, extend armor plates to within 13 mm (1/2 inch) of panic bolt cross bar.

2.16 EXIT DEVICES

A. Conform to ANSI Standard A156.3. Exit devices shall be Grade 1; type and function are specified in hardware sets. Provide flush with finished floor strikes for vertical rod exit devices in interior of building. Trim shall have lever handles similar to locksets, unless otherwise specified.

B. Exit devices for fire doors shall comply with Underwriters Laboratories, Inc., requirements for Fire Exit Hardware. Submit proof of compliance.

2.17 FLUSH BOLTS (LEVER EXTENSION)

A. Conform to ANSI A156.16. Flush bolts shall be Type L24081 unless otherwise specified. Furnish proper dustproof strikes conforming to ANSI A156.16, for flush bolts required on lower part of doors. Modify flush bolts to fit stiles of aluminum doors on double-acting doors.

B. Face plates for cylindrical strikes shall be rectangular and not less than 25 mm by 63 mm (1 inch by 2-1/2 inches).

C. Friction-fit cylindrical dustproof strikes with circular face plate may be used only where metal thresholds occur.

2.18 FLUSH BOLTS (AUTOMATIC)

A. Conform to ANSI A156.16. Dimension of flush bolts shall conform to ANSI A115. Bolts shall conform to Underwriters Laboratories, Inc., requirements for fire door hardware. Flush bolts shall automatically latch and unlatch. Furnish dustproof strikes conforming to ANSI A156.16 for bottom flushbolt. Face plates for dustproof strike shall be rectangular and not less than 38 mm by 90 mm (1-1/2 by 3-1/2 inches).

2.19 DOOR PULLS

A. Conform to ANSI A156.6. Pull plate 90 mm by 350 mm (3-1/2 inches by 14 inches), unless otherwise specified. Cut plates of door pulls for cylinders, or turn pieces where required.

2.20 PUSH PLATES

A. Conform to ANSI A156.6. Plastic, Type J302, 200 mm (8 inches) wide by 350 mm (14 inches) high. Provide plastic Type J300 plates 100 mm (4 inches wide by 350 mm (14 inches) high) where push plates are specified for doors with stiles less than 200 mm (8 inches) wide. Color shall be as specified for kick-mop plates in Section 09 06 00, SCHEDULE FOR FINISHES. Cut plates for cylinders, and turn pieces where required. When wood grain plastic plates are specified in SCHEDULE FOR FINISHES Section, grain in plates shall run in same direction as grain of face veneer of wood doors.

2.21 COMBINATION PUSH AND PULL PLATES

A. Conform to ANSI 156.6. Type J303, stainless steel 3 mm (1/8 inch) thick, 80 mm (3-1/3 inches) wide by 800 mm (16 inches) high), top and bottom edges shall be rounded. Secure plates to wood doors with 38 mm (1-1/2 inch) long No. 12 wood screws. Cut plates for turn pieces, and cylinders where required. Pull shall be mounted down.

2.22 COORDINATORS

A. Conform to ANSI A156.16. Coordinators, when specified for fire doors, shall comply with Underwriters Laboratories, Inc., requirements for fire door hardware. Coordinator may be omitted on exterior pairs of doors where either door will close independently regardless of the position of the other door. Coordinator may be omitted on interior pairs of non-labeled open where open back strike is used. Open back

strike shall not be used on labeled doors. Paint coordinators to match door frames, unless coordinators are plated.

2.23 THRESHOLDS

A. Conform to ANSI A156.21, mill finish extruded aluminum, except as otherwise specified. In existing construction, thresholds shall be installed in a bed of sealant with machine screws and expansion shields. In new construction, embed aluminum anchors coated with epoxy in concrete to secure thresholds. Furnish thresholds for the full width of the openings.

B. For thresholds at elevators entrances see other sections of specifications.

2.24 WEATHERSTRIPS (FOR EXTERIOR DOORS)

A. Conform to ANSI A156.22. Air leakage shall not to exceed 0.50 CFM per foot of crack length (0.000774m^3/s/m).

2.25 MISCELLANEOUS HARDWARE

A. Access Doors (including Sheet Metal, Screen and Woven Wire Mesh Types): Except for fire-rated doors and doors to Temperature Control Cabinets, equip each single or double metal access door with Lock Type E76213, conforming to ANSI A156.5. Key locks as directed. Ship lock prepaid to the door manufacturer. Hinges shall be provided by door manufacturer.

B. Cylinders for Access Doors: Provide cylinders to operate locking devices where specified for following partitions and doors:

1. Fire-rated access doors-Engineer's key set.

C. Mutes: Conform to ANSI A156.16. Provide door mutes or door silencers Type L03011, of white or light gray color, on each steel door frame, except lead-lined frames and frames for sound-resistant, lightproof and electromagnetically shielded doors. Furnish 3 mutes for single doors and 2 mutes for each pair of doors, except double-acting doors. Provide 4 mutes or silencers for frames for each Dutch type door. Provide 2 mutes for each edge of sliding door which would contact door frame.

D. Smoke Seals.

2.26 PADLOCKS FOR VARIOUS DOORS, HATCHES AND COILING DOORS

A. ASTM E883, size 50 mm (2 inch) wide chain; furnish extended shackles as required by job conditions. Provide padlocks, with key cylinders, for each door in following areas as noted.

B. Key padlocks as follows:

1. Fire-rated coiling doors.
2. Roof Access and Scuttles: Engineer's set.

C. Omit padlocks on communicating refrigerator doors.

2.27 THERMOSTATIC TEMPERATURE CONTROL VALVE CABINETS

A. Where lock is shown, equip each cabinet door (metal) with lock Type E06213, conforming to ANSI A156.1. Key locks in Key Sets approved by Contracting Officer. See mechanical drawings and specifications for location of cabinets.

B. Cabinet manufacturer shall supply the hinges, bolts and pulls. Ship locks to cabinet manufacturer for installation.

2.28 FINISHES

A. Exposed surfaces of hardware shall have ANSI A156.18, finishes as specified below. Finishes on all hinges, pivots, closers, thresholds, etc., shall be as specified below under "Miscellaneous Finishes." For field painting (final coat) of ferrous hardware, see Section 09 91 00, PAINTING.

B. 630: All surfaces on exterior and interior of buildings, except where other finishes are specified.

C. Miscellaneous Finishes:

1. Hinges --exterior doors: 630.
2. Hinges --interior doors: 652.
3. Door Closers: Factory applied paint finish. Satin Aluminum color.
4. Thresholds: Mill finish aluminum.
5. Cover plates for floor hinges and pivots: 630.
6. Other primed steel hardware: 652.

D. Hardware Finishes for Existing Buildings: U.S. Standard finishes shall match finishes of hardware in (similar) existing spaces except where otherwise specified.

E. Color of Plastic Items: See Section 09 06 00, SCHEDULE FOR FINISHES. Where colors other than chocolate brown or black are specified, color of core material may be different than color of face.

2.29 BASE METALS

A. Apply specified U.S. Standard finishes on different base metals as following:

Finish	**Base Metal**
652	Steel
626	Brass or bronze
630	Stainless steel

PART 3 - EXECUTION

3.1 HARDWARE HEIGHTS

A. For existing buildings locate hardware on doors at heights to match existing hardware. The Contractor shall visit the site, verify location of existing hardware and submit locations to Resident Engineer for approval.

B. For new buildings locate hardware on doors at heights specified below unless otherwise noted:

C. Hardware Heights from Finished Floor:

1. Exit devices centerline of strike (where applicable) 1000 mm (40-5/16 inches).
2. Locksets and latch sets centerline of strike 1000 mm (40-5/16 inches).
3. Deadlocks centerline of strike 1200 mm (48 inches).
4. Centerline of door pulls to be 1000 mm (40 inches).
5. Push plates and push-pull shall be 1250 mm (50 inches) to top of plate.
6. Push-pull latch to be 1000 mm (40-5/16 inches) to centerline of strike.
7. Centerline of deadlock strike to be 840 mm (33 inches) when used with push-pull latch.
8. Locate other hardware at standard commercial heights. Locate push and pull plates to prevent conflict with other hardware.

3.2 INSTALLATION

A. Closer devices, including those with hold-open features, shall be equipped and mounted to provide maximum door opening permitted by building construction or equipment. Closers shall be mounted regular arm. Where closers are mounted on doors they shall be mounted with sex nuts and bolts; foot shall be fastened to frame with machine screws.

B. Substitute parallel arm or top jamb mounting for regular arm mounting where the following conditions occur:

1. Where door swing, in full open position, would be limited to less than 90 degrees due to partition construction and closer location.
2. Where door to room opens outward into corridor.
3. Where exterior doors open outward.

C. Hinge Size Requirements:

Door Thickness	**Door Width**	**Hinge Height**
45 mm (1-3/4 inch)	900 mm (3 feet) and less	113 mm (4-1/2 inches)
45 mm (1-3/4 inch)	Over 900 mm (3 feet) but not more than 1200 mm (4 feet)	125 mm (5 inches)

D. Hinge leaves shall be sufficiently wide to allow doors to swing clear of door frame trim.

E. Hinges Required Per Door:

Doors 1500 mm (5 ft) or less in height	2 butts
Doors over 1500 mm (5 ft) high and not over 2280 mm (7 ft 6 in) high	3 butts
Doors over 2280 mm (7 feet 6 inches) high	4 butts
Doors with spring hinges 1370 mm (4 feet 6 inches) high or less	2 butts
Doors with spring hinges over 1370 mm (4 feet 6 inches)	3 butts

F. Fastenings: Suitable size and type and shall harmonize with hardware as to material and finish. Provide machine screws and lead expansion shields to secure hardware to concrete, ceramic or quarry floor tile, or solid masonry. Fiber or rawl plugs and adhesives are not permitted. All fastenings exposed to weather shall be of nonferrous metal.

G. After locks have been installed; show in presence of Resident Engineer that keys operate their respective locks in accordance with keying requirements. Installation of locks which do not meet specified keying requirements shall be considered sufficient justification for rejection and replacement of all locks installed on project.

3.3 HARDWARE SETS

A. Following sets of hardware correspond to hardware symbols shown on drawings. Where hardware set for a single door is specified for a pair of doors; equip each leaf of such pair of doors with set noted. Only those hardware sets that are shown on drawings will be required. Disregard hardware sets listed in specifications but not shown on drawings.

HARDWARE SETS HW 1 TO 168 (NOT USED)

HW 169
Hardware by coiling door manufacturer; Section 08 33 00
1 Ea. Cylinder-type as required

HW 170
2 Ea. Continuous Gear Hinges Heavy Duty with EPT prep
2 Ea. Power Transfers EPT
1 Ea. Concealed Vertical Rod Exit Device Type 6 Function 03
Electric Latch Retraction
1 Ea. Concealed Vertical Rod Exit Device Type 6 Function 01
Electric Latch Retraction
1 Ea. Cylinder – provide type required for trim
1 Ea. Power Supply with battery Back Up to operate 2 ELR devices
1 Ea. Card Reader – (By Security Vendor) for active leaf only
1 Ea. Closer CO2021
1 Ea. Automatic Door Operator; see Section 08 71 13
1 Ea. Actuator – push pad type
2 Ea. Armor Plates J101 4BE 42” height
1 Ea. Weatherstripping ROY 164 bulb
1 Ea. Set Adjustable Weatherstripping Astragal ROY834
1 Ea. Threshold J32100
2 Ea. Door Sweeps ROY 536 vinyl
1 Ea. Rain Drip x 4” over door width
2 Ea. Door Monitoring Contacts
1 Ea. P.I.R. (By Security Vendor)

Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid entry into building via one door (other door is latched). PIR sensor (provided and installed by Security Vendor) mounted above doors turns off door monitoring for programmed period of time allowing free exit from building.

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2 Ea. Continuous Gear Hinges Heavy Duty with EPT prep
2 Ea. Power Transfers EPT
2 Ea. Exit Device Type 6 Function 03
Electric Latch Retraction, Cylinder Dogging
4 Ea. Cylinder – provide type required for trim and dogging
1 Ea. Power Supply with Battery Back Up to operate 2 ELR devices
1 Ea. Card Reader – (By Security Vendor)
2 Ea. Automatic Door Operator; See Section 08 71 13
2 Ea. Actuators – push pad type
1 Ea. Weatherstripping – By Door Manufacturer
1 Ea. Threshold – By Door Manufacturer
1 Ea. Rain Drip x 4" over door width
2 Ea. Door Monitoring Contacts
1 Ea. P.I.R. Sensor (By Security Vendor)
2 Ea. Electromagnetic Locks
1 Ea. Card Reader (By Security Vendor) for both leaves
1 Ea. Emergency Override Button - Located in Lobby

Door Sequence: During regular business hours, door will operate by via interior and exterior automatic door operator sensor.

After hours, magnetic locks are energized. Card Reader (provided, installed and programmed by Security Vendor) de-energizes magnetic locks & operates automatic doors. PIR operates automatic doors from interior.

Emergency override button installed in lobby de-energizes magnetic locks and operates automatic doors or allows doors to be pushed open.

HW 172

3 Ea. Butts as required NRP
1 Ea. Exit Device Type 1 Function 03
1 Ea. Cylinder – provide type required
1 Ea. Closer C02021
1 Ea. Kick plate J102 4BE
1 Ea. Weatherstripping ROY 164 bulb
1 Ea. Threshold J32100
1 Ea. Door Sweep ROY 536 vinyl
1 Ea. Rain Drip x 4" over door width
1 Ea. Door Monitoring Contact

HW 173

3 Ea. Butts as required
1 Ea. Classroom Lockset F05
1 Ea. Kick plate J102 4BE
1 Ea. Closer C2011
1 Ea. Weatherstripping ROY 164 bulb
1 Ea. Threshold J32100
1 Ea. Door Sweep ROY 416 brush
1 Ea. Rain Drip x 4" over door width
1 Ea. Door Monitoring Contact

HW 173A 3 Ea. Butts as required NRP 1 Ea. Electric Lockset 1 Ea. Kick plate J102 4BE 1 Ea. Closer C2021 1 Ea. Weatherstripping ROY 164 bulb 1 Ea. Threshold J32100 1 Ea. Door Sweep ROY 536 vinyl 1 Ea. Rain Drip x 4” over door width 1 Ea. Door Monitoring Contact 1 Ea. Card Reader (By Security Vendor) 1 Ea. Power Supply for Reader – (By Security Vendor) Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access onto roof. Exit hardware on outside of door will allow entry into building.
HW 173B 3 Ea. Butts as required 1 Ea. Electric Lockset 1 Ea. Kick plate J102 4BE 1 Ea. Closer C2011 1 Ea. Weatherstripping ROY 164 bulb 1 Ea. Threshold J32100 1 Ea. Door Sweep ROY 416 brush 1 Ea. Rain Drip x 4” over door width 1 Ea. Door Monitoring Contact 1 Ea. Card Reader (By Security Vendor) 1 Ea. P.I.R. Sensor (By Security Vendor) Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access into room. PIR sensor (provided and installed by Security Vendor) mounted above door in space turns off door monitoring for programmed period of time allowing free exit from room.

HW 174
2 Ea. Continuous Gear Hinges Heavy Duty with EPt prep
2 Ea. Power Transfers EPT
2 Ea. Concealed Vertical Rod Exit Device Type 6 Function 03 Electric Latch Retraction
2 Ea. Cylinders – provide type required for trim
1 Ea. Power Supply with batter Back Up to operate 2 ELR devices
1 Ea. Card Reader – (By Security Vendor)
1 Ea. Power Supply for Reader – (By Security Vendor)
2 Ea. Automatic Door Operator; see Section 08 71 13
1 Ea. Actuator push pad type
2 Ea. Armor Plates J101 4BE 42” height
1 Ea. Weatherstripping ROY 164 bulb
1 Ea. Set adjustable weatherstripping astragal ROY834
1 Ea. Threshold J32100
2 Ea. Door Sweeps ROY 416 Brush
1 Ea. Rain Drip x 4” over door width
2 Ea. Door Monitoring Contacts
1 Ea. Emergency Key Override – Located in Lobby
1 Ea. Emergency Button Override – Located Outside Doors
1 Ea. P.I.R. Sensor (By Security Vendor)

Door Sequence: Card Reader (provided and installed by Security Vendor) functions as actuator button, de-energizes magnetic locks and operates automatic doors elevator lobby. Emergency key override installed in lobby de-energizes magnetic locks and operates automatic doors or allows doors to be pushed open.

PIR sensor (provided and installed by Security Vendor) de-energizes magnetic locks and operates automatic doors from exterior. Emergency override button installed outside de-energizes magnetic locks and operates automatic doors or allows doors to be pulled open.

HW 175 - rated

Hinges		QUANTITY & TYPE AS REQUIRED
1	Set Auto Flush Bolts	TYPE 25 LESS BOTTOM BOLT
1	Storeroom Lock	F07
1	Coordinator	TYPE 21A
1	Overlapping Astragal with Self-Adhesive Seal	R5Y634 x R0E154 x THRU-BOLTS
2	Closers	C02011/C02021 (PT4D, PT4F, PT4H)
2	Heavy-Duty Armor Plates	J101 x 3.175 MM (0.125 INCH THICKNESS
2	Overhead Stops	C01541-ADJUSTABLE

HW 176 - rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Electrified Lock	Storeroom F07
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Electric Strike	
1	In-Line Power Conditioner/Rectifier	
1	Mortar Box	
1	Door Status Contact	
1	Heavy-Duty Armor Plate	J101 x 3.175 MM (0.125 INCH) THICKNESS
1	Card Reader and Request to Exit (By Security Vendor)	
1	Power Supply for Reader (By Security Vendor)	

Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access into room.
PIR sensor (provided and installed by Security Vendor) mounted above door in space turns off door monitoring for programmed period of time allowing free exit from room.

HW 177 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Electrified Lock	Storeroom F07
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Electric Strike	
1	In-Line Power Conditioner/Rectifier	
1	Mortar Box	
1	Door Status Contact	
1	Heavy-Duty Armor Plate	J101 x 3.175 MM (0.125 INCH) THICKNESS
1	Card Reader and Request to Exit (By Security Vendor)	
1	Power Supply for Reader (By Security Vendor)	

Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access into room. PIR sensor (provided and installed by Security Vendor) mounted above door in space turns off door monitoring for programmed period of time allowing free exit from room.

HW 178 – not rated

2	Closers	
2	Push/Pulls	
2	Floor Stops	L02121 x 3 FASTENERS
1	Heavy-Duty Armor Plate	J101 x 3.175 MM (0.125 INCH) THICKNESS

HW 179 - rated

	Hardware by coiling door manufacturer; Section 08 33 00	
1	Ea. Cylinder-type as required	

HW 180 – Not Rated

2 Ea. Continuous Gear Hinges Heavy Duty
2 Ea. Power Transfers EPT
2 Ea. Automatic Door Operator; See Section 08 71 13
2 Push/Pull Bar Sets J505 – 305 MM (12 INCH) CENTER-TO-CENTER PULL

AUTO DOOR OPERATORS, CONTROLS, AND REACTIVATION SENSORS BY SECTION 08 71 13.11.

POWER TRANSFERS FOR RE-ACTIVATION SENSOR WIRING (RE-ACTIVATION SENSORS PROVIDED BY SECTION 08 71 13). 120VAC POWER, CONDUIT, AND WIRING BY DIVISION 26.

Door Sequence: Door will operate via interior and exterior automatic door operator sensor.

HW 181 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Electrified Lock	Storeroom F07
1	Closer	
1	Exit hardware	
1	Electric Strike	
1	In-Line Power Conditioner/Rectifier	
1	Mortar Box	
1	Door Status Contact	
1	Overhead Stop	
1	Card Reader (By Security Vendor)	
1	Power Supply for Reader (By Security Vendor)	

Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access into room.
PIR sensor (provided and installed by Security Vendor) mounted above door in space turns off door monitoring for programmed period of time allowing free exit from space.

HW 182 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Electrified Lock	Passage F31
1	Electric Strike	
1	In-Line Power Conditioner/Rectifier	
1	Mortar Box	
1	Door Status Contact	
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Overhead Stop	
1	Set Self-Adhesive Seals	R0E154
1	Card Reader (By Security Vendor)	
1	Power Supply for Reader (By Security Vendor)	

Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access into elevator lobby.
PIR sensor (provided and installed by Security Vendor) mounted above door in space turns off door monitoring for programmed period of time allowing free exit from elevator lobby.

HW 183 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Electrified Lock	Storeroom F07
1	Electric Strike	
1	In-Line Power Conditioner/Rectifier	
1	Mortar Box	
1	Door Status Contact	
1	Closer	
1	Heavy-Duty Armor Plate	J101 x 3.175 MM (0.125 INCH) THICKNESS
	Overhead Stop	
1	Set Self-Adhesive Seals	R0E154
1	Card Reader (By Security Vendor)	
1	Power Supply for Reader (By Security Vendor)	

Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access into room.
PIR sensor (provided and installed by Security Vendor) mounted above door in space turns off door monitoring for programmed period of time allowing free exit from room.

HW 184 – not rated

1	Classroom Lock	F08
1	Set Self-Adhesive Seals	R0E154
2	Automatic Door Operator; see Section 08 71 13	

AUTOMATIC DOOR OPERATOR AND CONTROLS BY SECTION 08 71 13, AUTOMATIC DOOR OPERATORS.
POWER TRANSFER FOR RE-ACTIVATION SENSOR WIRING (RE-ACTIVATION SENSORS PROVIDED BY SECTION 08 71 13).

HW 185 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Storeroom Lock F07	
1	Electric Strike	
1	Electrified Lock	Storeroom F07
1	In-Line Power Conditioner/Rectifier	
1	Mortar Box	
1	Door Status Contact	
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Wall Stop	L52101 CONVEX
1	Card Reader (By Security Vendor)	
1	Power Supply for Reader (By Security Vendor)	

Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access into room.
PIR sensor (provided and installed by Security Vendor) mounted above door in space turns off door monitoring for programmed period of time allowing free exit from room.

HW 186 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Latchset	F01 (Passage)
1	Door pull	
1	Push-pull plate	J303
1	Closer	C02051
1	Heavy-Duty Armor Plate THICKNESS	J101 x 3.175 MM (0.125 INCH)
1	Wall Stop	L52101 CONVEX
3	Silencers	L03011

HW 187 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Classroom Lock	F08
1	Wall Stop	L52101 CONVEX
3	Silencers	L03011

HW 188 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Privacy Lock	F02-MOD X OCCUPANCY INDICATOR
1	Kick Plate	J102
1	Mop Plate	J102
1	Wall Stop	L52101 CONVEX
3	Silencers	L03011

HW 189 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Electric Strike	
1	Electrified Lock	Storeroom F07
1	In-Line Power Conditioner/Rectifier	
1	Mortar Box	
1	Door Status Contact	
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Kick Plate	J102
1	Wall Stop	L52101 CONVEX
1	Card Reader (By Security Vendor)	
1	Power Supply for Reader (By Security Vendor)	

Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access into room.
PIR sensor (provided and installed by Security Vendor) mounted above door in space turns off door monitoring for programmed period of time allowing free exit from room.

HW 190 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Storeroom Lock F07	
1	Wall Stop	L52101 CONVEX

HW 191 – not rated

	Hinges quantity as required	180 degree hinges (Except at door GA115)
1	Storeroom Lock	F07
1	Wall Stop	L52101 CONVEX

HW 192 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Utility Lock	F09
2	Closer	C02051/C02061 (PT4D, PT4H)
2	Overhead Stop	C04541
2	Sets Self-Adhesive Seals	R0E154

Note: If Alternate #2 is accepted, this hardware set will be provided by the Demountable partition sub contractor.

HW 193 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Utility Lock	F09
1	Closer	C02051/C02061 (PT4D, PT4H)
1	Overhead Stop	C04541
1	Set Self-Adhesive Seals	R0E154

Note: If Alternate #2 is accepted, this hardware set will be provided by the Demountable partition sub contractor.

HW 194 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Office Lock	F04
1	Wall Stop	L52101 CONVEX
1	Set Self-Adhesive Seals	R0E154
1	Coat Hook	L03121

Note: If Alternate #2 is accepted, this hardware set will be provided by the Demountable partition sub contractor.

HW 195 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Classroom Lock F75	
1	Closer	
1	Overhead Stop	C04541 (at GA118A)
1	Wall Stop	L52101 CONVEX (at GA118)

HW 196 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Latchset	F01
1	Closer (@ non-rated doors)	C02051/C02061 (PT4D, PT4H)
1	Wall Stop	L52101 CONVEX
1	Set Self-Adhesive Seals	R0E154

HW 197 – rated		
2	Continuous Hinges	A51031B x INTEGRAL HINGE GUARD CHANNEL X ADJUSTA-SCREWS
1	Auto Flush Bolt	TYPE 25 LESS BOTTOM BOLT (on active leaf)
1	Auto Flush Bolt	TYPE 25 (on inactive leaf)
1	Classroom Lock	F08
1	Coordinator	TYPE 21A
1	Overlapping Astragal with Self-Adhesive Seal	R5Y634 x R0E154 x THRU-BOLTS
2	Closers	C02011/C02021 (PT4D, PT4F, PT4H)
2	Heavy-Duty Armor Plates	J101 x 3.175 MM (0.125 INCH) THICKNESS
1	Lock Trim Protector Bar	R111LPB-630 (ROCKWOOD), OR EQUAL
2	Overhead Stops	C01541-ADJUSTABLE
2	Auto Door Bottoms	R0Y346 – HEAVY DUTY
2	Set Self-Adhesive Seals	R0E154
INSTALL LOCK TRIM PROTECTOR BAR ON PUSH SIDE OF ACTIVE LEAF TO PROTECT LEVER TRIM.		
HW 198 – not rated		
2	Continuous Hinges	A51031B x INTEGRAL HINGE GUARD CHANNEL x ADJUSTA-SCREWS
1	Auto Flush Bolt	TYPE 25 LESS BOTTOM BOLT
1	Passage Lock	F01
1	Coordinator	TYPE 21A
1	Overlapping Astragal with Self-Adhesive Seal	R5Y634 x R0E154 x THRU-BOLTS
2	Closers	C02011/C02021 (PT4D, PT4F, PT4H)
2	Heavy-Duty Armor Plates	J101 x 3.175 MM (0.125 INCH) THICKNESS
1	Lock Trim Protector Bar	R111LPB-630 (ROCKWOOD), OR EQUAL
2	Overhead Stops	C01541-ADJUSTABLE
2	Auto Door Bottoms	R0Y346 – HEAVY DUTY
2	Set Self-Adhesive Seals	R0E154
HW 199 – rated		
	Hinges	QUANTITY & TYPE AS REQUIRED
1	Storeroom Lock	F07
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Overhead Stop	C01541-ADJUSTABLE
1	Wall Stop	L52101 CONVEX (at GA142A)
1	Set Self-Adhesive Seals	R0E154
HW 200 - rated		
1	Continuous Hinge	A51031B x INTEGRAL HINGE GUARD CHANNEL X ADJUSTA-SCREWS
1	Exit Device	TYPE 1 F08 LEVER
1	Key Cylinder	TYPE AS REQUIRED
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Wall Stop	L52101 CONVEX
1	Set Self-Adhesive Seals	R0E154

HW 201 – rated

1	Continuous Hinge	A51031B x INTEGRAL HINGE GUARD CHANNEL X ADJUSTA-SCREWS
1	Exit Device	TYPE 1 F08 LEVER
1	Key Cylinder	TYPE AS REQUIRED
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Wall Stop	L52101 CONVEX
1	Set Self-Adhesive Seals	R0E154
1	Electric Strike	
1	Electrified Lock	TYPE AS REQUIRED
1	In-Line Power Conditioner/Rectifier	
1	Mortar Box	
1	Door Status Contact	
1	Card Reader (By Security Vendor)	
1	Power Supply for Reader (By Security Vendor)	

Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access from stairway into space.
PIR sensor (provided and installed by Security Vendor) mounted above door in space turns off door monitoring for programmed period of time allowing free exit into stairway from basement.

HW 202 – rated

1	Continuous Hinge	A51031B x INTEGRAL HINGE GUARD CHANNEL X ADJUSTA-SCREWS
1	Exit Device	TYPE 1 F08 LEVER (Exit only, no readmittance)
1	Key Cylinder	TYPE AS REQUIRED
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Overhead Stop	C01541-ADJUSTABLE
1	Set Self-Adhesive Seals	R0E154

HW 203 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Latchset	F01
1	Overhead Stop	C01541-ADJUSTABLE
1	Set Self-Adhesive Seals	R0E154

Note: If Alternate #2 is accepted, this hardware set will be provided by the Demountable partition sub contractor.

HW 204 – not rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Latchset	F01
1	Wall Stop	L52101 CONVEX
1	Set Self-Adhesive Seals	R0E154

Note: If Alternate #2 is accepted, this hardware set will be provided by the Demountable partition sub contractor.

HW 205 – rated

2	Continuous Hinges	A51031B x INTEGRAL HINGE GUARD CHANNEL X ADJUSTA-SCREWS
1	Auto Flush Bolt	TYPE 25 LESS BOTTOM BOLT (on active leaf)
1	Auto Flush Bolt	TYPE 25 (on inactive leaf)
1	Classroom Lock	F08
1	Coordinator	TYPE 21A
1	Overlapping Astragal with 2 Sets Self-Adhesive Seal	R5Y634 x R0E154 x THRU-BOLTS
2	Closers	C02011/C02021 (PT4D, PT4F, PT4H)
2	Heavy-Duty Armor Plates	J101 x 3.175 MM (0.125 INCH) THICKNESS
1	Lock Trim Protector Bar	R111LPB-630 (ROCKWOOD), OR EQUAL
2	Overhead Stops	C01541-ADJUSTABLE
2	Set Self-Adhesive Seals	R0E154

INSTALL LOCK TRIM PROTECTOR BAR ON PUSH SIDE OF ACTIVE LEAF TO PROTECT LEVER TRIM.

HW 206 – rated
2A143

2	Continuous Hinges	A51031B x INTEGRAL HINGE GUARD CHANNEL X ADJUSTA-SCREWS
1	Auto Flush Bolt	TYPE 25 LESS BOTTOM BOLT (on active leaf)
1	Auto Flush Bolt	TYPE 25 (on inactive leaf)
1	Latchset	F01
1	Coordinator	TYPE 21A
1	Overlapping Astragal with Self-Adhesive Seal	R5Y634 x R0E154 x THRU-BOLTS
2	Closers	C02011/C02021 (PT4D, PT4F, PT4H)
2	Heavy-Duty Armor Plates	J101 x 3.175 MM (0.125 INCH) THICKNESS
1	Lock Trim Protector Bar	R111LPB-630 (ROCKWOOD), OR EQUAL
2	Overhead Stops	C01541-ADJUSTABLE
2	Set Self-Adhesive Seals	R0E154

INSTALL LOCK TRIM PROTECTOR BAR ON PUSH SIDE OF ACTIVE LEAF TO PROTECT LEVER TRIM.

HW 207 - rated

1	Continuous Hinge	A51031B x INTEGRAL HINGE GUARD CHANNEL X ADJUSTA-SCREWS
1	Exit Device	TYPE 1 F08 LEVER
1	Key Cylinder	TYPE AS REQUIRED
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Set Self-Adhesive Seals	R0E154
1	Overhead Stop	C01541-ADJUSTABLE

HW 208 - rated

	Hinges	QUANTITY & TYPE AS REQUIRED
1	Electric Strike	
1	Electrified Lock	Storeroom F07
1	In-Line Power Conditioner/Rectifier	
1	Mortar Box	
1	Door Status Contact	
1	Closer	C02011/C02021 (PT4D, PT4F, PT4H)
1	Armor Plate	J101 x 1.275 MM (0.050 INCH) THICKNESS
1	Overhead Stop	C01541-ADJUSTABLE
1	Set Self-Adhesive Seals	R0E154
1	Card Reader (By Security Vendor)	
1	Power Supply for Reader (By Security Vendor)	

Door Sequence: Card Reader (provided and installed by Security Vendor) allows valid access from bridge into vestibule. PIR sensor (provided and installed by Security Vendor) mounted above door in space turns off door monitoring for programmed period of time. Card Reader (provided and installed by Security Vendor) allows valid access from vestibule into bridge.

HW 209 - rated

2	Continuous Transfer Hinges	A51031B x INTEGRAL HINGE GUARD CHANNEL X ADJUSTA-SCREWS x (2) 4-THRUWIRE TRANSFERS X IN-HINGE ACCESS PANEL
1	Key Cylinder	TYPE AS REQUIRED
1	Coordinator	TYPE 21A
1	Overlapping Astragal with Self-Adhesive Seal	R5Y634 x R0E154 x THRU-BOLTS
2	Armor Plates	J101 x 1.275 MM (0.050 INCH) THICKNESS
2	Overhead Stops	C01541-ADJUSTABLE
2	Sets Self-Adhesive Seals	R0E154
2	Key Override Switch	
1	Door Status Contact	
1	Electromagnetic Lock	
1	Card Reader (By Security Vendor)	
1	Power Supply for Reader (By Security Vendor)	
2	Automatic Door Operator; see Section 08 71 13	

TOP POWER TRANSFER IS FOR RE-ACTIVATION SENSOR WIRING (RE-ACTIVATION SENSORS PROVIDED BY SECTION 08 71 13).
AUTOMATIC DOOR OPERATOR AND CONTROLS BY SECTION 08 71 13, AUTOMATIC DOOR OPERATORS.

Notes:

1. Door status switches (door contacts) shall be installed in the door frame.
2. Card reader operations shall be “fail safe open” allowing free entry when card reader is activated or loss of power. Doors with card readers shall allow free exiting at all times.
3. Provide fire labeled hardware at fire rated doors. See door schedule for location and rating of fire doors.

- - - E N D - - -